PATENT ABSTRACTS OF JAPAN

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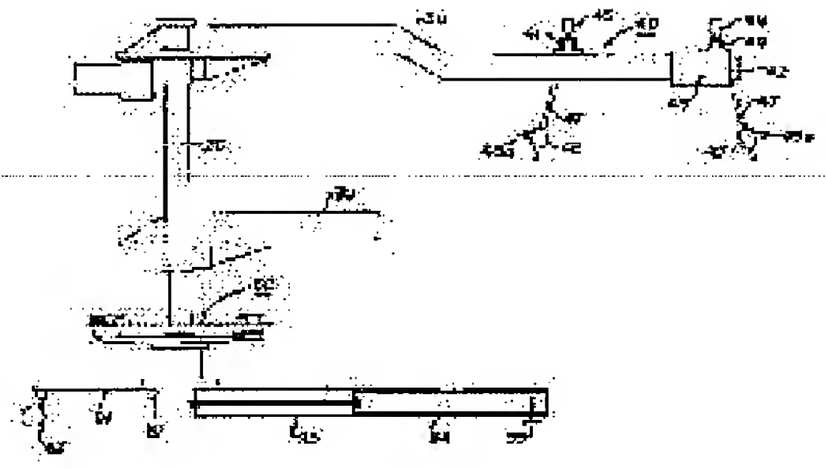
(54) WALKING TRAINING DEVICE

(57)Abstract:
PURPOSE: To constitute the device so that even a walker whose walking is extremely difficult can execute walking training, and also, leg force can be strengthened to a walker who can execute considerably walking.
CONSTITUTION: The device is provided with a horizontal arm 30 attached to a rotation axis 20, and a walker supporting means 40 attached to the horizontal arm 30. A walker holds side supporting members 45, 46 to both sides, grips grip members 48, 49, and walks, while rotating the horizontal arm 30 so as to push it. In this walking training, the case for adding damping force to the horizontal arm 30, and the case for adding forced rotating force to the horizontal arm 30 can be performed.



* NOTICES *

CLAIMS

[Claim(s)]
[Claim 1]A gait training apparatus which having comprised a pedestrian support means attached to a horizontal arm attached to the axis of rotation, and this horizontal arm, and constituting so that a pedestrian supported by pedestrian support means may walk the circumference of said axis of rotation.
[Claim 2]A gait training apparatus given in the 1st paragraph of a claim, wherein said pedestrian support means comprises a near support member of a couple which supports a pedestrian's side, and a gripping member of a couple grasped by pedestrian.
[Claim 3]A gait training apparatus given in the 2nd paragraph of a claim with which the interval is constituted for a near support member of said couple, and a gripping member of said couple by variable.
[Claim 4]A gait training apparatus of composition of that said horizontal arm is attached to said axis of rotation which has a predetermined braking effort given in the 1st paragraph of a claim.
[Claim 5]A gait training apparatus of composition of that said horizontal arm is attached to said axis of rotation which has compulsive predetermined torque given in the 1st paragraph of a claim.
[Claim 6]Said pedestrian support means is a gait training apparatus of strange good composition of taking, having ****** and being attached given in the 1st paragraph of a claim to said horizontal arm.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to the gait training apparatus with which a pedestrian with difficulty in walking performs walking training.
[0002]
[Description of the Prior Art]There is a thing to which walking training is made to perform by hanging a pedestrian by predetermined chinning-exercises power, and paying a pedestrian's weight as a conventional gait training apparatus.
[0003]
[Problem(s) to be Solved by the Invention]However, according to the conventional gait training apparatus, since the pedestrian for whom a walk is very difficult will be in the state where it becomes a form which has the great portion of weight paid, and the air is walked, he may not fully achieve the effect of walking training.
[0004]
[Means for Solving the Problem]In order training of a walk is possible for this invention even if a walk is a very difficult pedestrian, in addition to be able to aim at enhancement of strength of its legs for a pedestrian who can do a walk considerably, A gait training apparatus which comprised a pedestrian support means attached to a horizontal arm attached to the axis of rotation and this horizontal arm is provided.
[0005]
[Example]Hereafter, the gait training apparatus of this invention is explained in detail. Drawing 1 shows one example of this invention, and comprises the base 10, the axis of rotation 20, the horizontal arm 30, the pedestrian support member 40, and braking and an actuator 50. The base 10 has the axle-pin rake 92 attached to the substrate 91, the stable member 94 with the inhibition member 93, and the member holding 95 which accommodates the stable member 94 so that receipts and payments are possible.
[0006]The 1st bar member 41 that drawing 2 showed the pedestrian support member 40, and was attached to the horizontal arm 30, The 2nd bar member 44 attached to the interval adjusting member 43 attached so that it might pinch to the horizontal arm 30 and might slide by adjustment of 42, It comprises the near support members 45 and 46 of a couple and the parallel member 47 which were fixed to these bar members 41 and 44, and the gripping members 48 and 49 attached to the parallel member 47. The parallel member 47 has the justification hole 47a, and it is constituted so that it may fit in with the screw-thread tip part (not shown) of the knobs 48a and 49a of the gripping members 48 and 49.
[0007]The moving piece 23 which drawing 3 shows the interval adjusting member 43, and the stopper 22 is being fixed to the screw-thread stick 21 which rotates by operation of the knob 42, and engages with the screw-thread stick 21 is being fixed to the inner circumference of the interval adjusting member 43. The screw-thread stick 21 is supported in rotation via the nut 25 by the holddown member 24 fixed to the horizontal arm 30.
[0008]Drawing 4 shows braking and the actuator 50, and the braking motor 52 and the compulsive rotary motor 53 are formed in the rotor plate 51 fixed to the axis of rotation 20. As for the braking motor 52, rotation is told to the symmetrical screw thread 55 via the sprocket chain 54, While the brake plate 57 which has the brake friction pad 56 on the symmetrical screw thread 55 is

supported by the fulcrum 58, an end is stopped, and the end of the stationary plate 59 fixed by the base 13 of the base 10 between the brake friction pads 56 is located. The rotary base 12 fixed to the axis of rotation 20 is being fixed to the inside of the base 13 in rotation via the bearing 14. The compulsive rotary motor 53 is constituted so that rotation may be told to the sprocket chain 71 stopped to the sprocket 72 fixed to the base 13 via the sprocket chain 70.

[0009]An operation is explained in the above composition. A pedestrian assigns the near support members 45 and 46 to both the sides, grasps the gripping members 48 and 49, and he walks, making it rotate, as the horizontal arm 30 is pushed. The case where a braking effort is added to the horizontal arm 30 in this walking training, and the case where compulsive torque is added to the horizontal arm 30 are explained.

[0010](1) If the addition braking motor 52 of a braking effort rotates clockwise, the symmetrical screw thread 55 will rotate, the interval of the braking plate 57 will become large on the right-hand side of the fulcrum 58, the interval of the damping pad 56 will become small, the stationary plate 59 will be sandwiched, and a braking effort will be generated. The pedestrian can perform walking training, aiming at enhancement of strength of his legs, since it walks resisting a braking effort and pushing the horizontal arm 30. On the other hand, if the braking motor 52 is rotated counterclockwise, this braking effort can be decreased.

[0011](2) If the addition compulsion rotary motor 53 of compulsive torque rotates, since the sprocket chain 70 and 71 will drive, the forcible drive of the rotor plate 51 is carried out relatively to the sprocket 72 fixed to the base 13. As a result, the axis of rotation 20 is made to carry out forcible rotation. Training of the pedestrian to whom strength of its legs fell by this compulsive rotation can be given.

[0012]As for the near support members 45 and 46, the interval is adjusted with operation of the knob 42. That is, if the knob 42 is rotated clockwise, the screw-thread stick 21 will rotate and the moving piece 23 will be moved leftward (drawing 3). If the moving piece 23 reaches the stopper's 22 position, the interval adjusting member 43 and the bar member 44 will come to the position of a dotted line (drawing 3), and the interval of the near support members 45 and 46 will become the minimum. On the other hand, if the knob 42 is rotated counterclockwise, the interval of the near support members 45 and 46 will become large. The position of the gripping members 48 and 49 can be made to go up and down simultaneously by changing the fitting position to the justification hole 47a of the knobs 48a and 49a.

[0013]Although the explanation which overlaps since drawing 5 shows the 2nd example of this invention and the same portion as the 1st example is shown by the same quotation number is omitted, the horizontal arms 30a and 30b have composition which can perform adjustment of an angle by the angle adjusting member 80.

[0014](a) - (e) of drawing 6 can show the example which adjusted the angle of the horizontal arms 30a and 30b to 0 degree, 180 degrees, 90 degrees, 45 degrees, and 135 degrees by the angle adjusting member 80, and can perform walking training, such as the walking posture for which a pedestrian wishes, i.e., positive, backward, a horizontal walk, and a slanting walk. In drawing 1, in order to show that it is what has the composition which the horizontal arm 30 goes up and down, the dotted line illustrated the position of the lower part of the horizontal arm 30, but drawing 7 explains it. The axis of rotation 20 mentioned above has the rack 201 and the linear rails 202, and the horizontal arm fitting part 204 is supported by the linear rails 202 via the linear 203. The direct-current motor 205 is being fixed to this horizontal arm fitting part 204, the output shaft of the direct-current motor 205 engages with the sprocket 206, and the sprocket 206 and the pinion gear 209 are connected via the driving shaft 207 by which rotation support was carried out to the bearing block 208. This pinion gear 209 is engaging with the rack 201 of the axis of rotation 20. In the above composition, if the direct-current motor 205 rotates, the pinion gear 209 will drive and the horizontal arm 30 (Drawing 1) attached to the horizontal arm fitting part 204 according to the hand of cut will fluctuate. Thus, bending and stretching exercises can be made to perform to a walking training person by making the horizontal arm 30 go up and down at a fixed interval. The load which whichever may be sufficient as the axis of rotation of the horizontal arm 30, and is given to it in the 1st example can be adjusted in the range of 0 - 20kgf. A cushion may be formed in the near support members 45 and 46 which support a pedestrian, and further, if four axle-pin rakes are provided in a device, for example, mobility will become good.

[0015]

[Effect of the Invention]Since it comprises a pedestrian support means attached to the horizontal arm attached to the axis of rotation, and this horizontal arm according to the gait training apparatus of this invention as explained above, Even if a walk is a very difficult pedestrian, training of a walk is possible, in addition enhancement of strength of its legs can be aimed at for the pedestrian who can do a walk considerably.

[Translation done.]

* NOTICES *

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]The explanatory view showing the 1st example of this invention.
[Drawing 2]The explanatory view showing the 1st example of this invention.
[Drawing 3]The explanatory view showing the 1st example of this invention.
[Drawing 4]The explanatory view showing the 1st example of this invention.
[Drawing 5]The explanatory view showing the 2nd example of this invention.
[Drawing 6]The explanatory view showing the 2nd example of this invention.
[Drawing 7]The explanatory view showing the up-and-down mechanism of the horizontal arm applied to this invention
[Description of Notations]
10 Base 12 rotary base 13 base
14 Bearing 20 axis of rotation 21 screw-thread stick
22 Stopper 23 Moving piece
24 Holddown member 25 nut
30, 30a, 30b horizontal arm
41 and 44 Bar member 42 pinch
43 Rotational adjustment member 45 and 46 Near support member
47 Parallel member 47a justification hole
48 and 49 Gripping member 48a, 49a knob
50 Braking and actuator 51 rotor plate
52 Braking motor 53 compulsion rotary motor
54 Sprocket chain 55 Symmetrical screw thread
56 Brake-friction-pad 57 brake plate
58 Fulcrum 70 and 71 Sprocket chain
80 Angle adjusting member 91 board
92 Axle-pin-rake 93 Inhibition member
94 Stable member 95 member holding

[Translation done.]